

## **Supplemental Report of Robert Weber**

### **CASES:**

**Richard Masephol v. Weyerhaeuser Company, et al.**

**Milton Boyer and Kathy Boyer v. Weyerhaeuser Company et al.**

**Wesley Sydow and Theresa Sydow v. Weyerhaeuser Company, et al.**

**Brian Heckel, Individually and as the Special Administrator of the Estate of Share Heckel, Deceased v. 3M Company**

This report supplements information that was provided in my Richard Masephol report dated March 19, 2015, Wesley Sydow report dated March 19, 2015, Milton Boyer report dated March 19, 2015, and Mr. Brian Heckel on behalf of Sharon Heckel (deceased) report dated September 18, 2014, and my affidavit that was submitted on August 3, 2015. My opinions are based on my years of experience and knowledge in industrial hygiene, health and safety standards/regulations, personal protective equipment standards/regulations; and my work with personal protective equipment such as respiratory protective devices. This includes OSHA 29 CFR 1910.134 Respirator Protection Standards; OSHA 29 CFR 1910.1001 Asbestos Standards; OSHA 29 CFR 1926.103 Construction Standards; NIOSH 30 CFR and 42 CFR Respiratory Protection Standards; ANSI Z88 Standards; OSHA rule making materials, proceedings and final rule on Assigned Protection Factors. My opinions have also been formulated on my knowledge and review of 3M 8710 advertising, packaging, instructions and 3M internal documents. This report is also based on my review of the following documents: Declaration of Richard Masephol; Complaint filed by Plaintiff Richard Masephol; February 11 & 12, 2015 Deposition of Richard Masephol; Exposure Summary for Richard Masephol prepared by Cascino Vaughn Law Offices; June 6, 2014 Declaration of Wesley Sydow; January 26, 2015 Wesley Sydow Exposure Summary prepared by Cascino Vaughn Law Offices; Complaint filed by Plaintiff Wesley Sydow; November 12, 2014 Deposition of Wesley Sydow; Complaint filed by Plaintiffs Milton Boyer and Kathy Boyer; Milton Boyer Exposure Summary prepared by Cascino Vaughn Law Offices; June 16 and 14, 2014 Depositions of Milton Boyer; June 10, 2014 Deposition of Brian Heckel, January 26, 2015 Sharon Heckel Exposure Summary Prepared by Cascino Vaughn Law Offices; Complaint by Brian Heckel, individually and as the special administrator for the the lawsuit on behalf of Sharon Hickel (deceased); March 19, 2014 Deposition of Joeseeph Wendlick; May 1, 2007 Deposition of Ronald Koepke; March 11, 2014 Deposition of Wilhelm Haeni;

March 12, 2014 Deposition of Jerry Saindon; April 3 and 23, 2014 Volume I and II, and February 12, 2015 Depositions of Charles Reno; 2014 Deposition of Everett Alan Burt; January 28, 2015 Frank Parker Report regarding Mr. Richard Masephol; January 29, 2015 Frank Parker Report regarding Mr. Milton Boyer; January 29, 2015 Frank Parker Report regarding Mr. Wes Sydow; August 18, 2014 Frank Parker Report regarding Mrs Sharon Heckel; July 7, 8 2015 Deposition of Frank Parker; June 1, 2, 23, 2015 and July 1, 2015 Volumes 1-4 Depositions of Henry A. Anderson; and Asbestos – Worker, Community and Household Exposures Roddis Plywood/Weyerhaeuser Co. Fire Door Manufacturing Operations, Marshfield, Wisconsin Report (January 2015)

Plaintiffs Mr. Masephol, Mr. Sydow, Mr. Boyer, and Mr. Heckel allege that they or their decedent developed asbestos related diseases from being exposed to asbestos containing dust originating from the Weyerhaeuser Marshfield Plant in Marshfield, Wisconsin. Testimonies and proceedings indicate that this facility manufactured doors that contained asbestos. Production of these doors involved multiple steps, from producing the asbestos (mineral) core, to final detailing of the door. The production of the doors that contained asbestos fibers resulted in Weyerhaeuser taking steps to control asbestos exposure within the workplace environment. Plaintiffs' have stated that they were not only exposed to asbestos containing dust while working on site; but that asbestos exposures also took place in their homes and community.

Mr. Masephol began working at the Weyerhaeuser Marshfield Plant in 1973 and he alleges his occupational or workplace exposure to asbestos containing dust took place from February 1974 to February 1979 while he cut, sawed, assembled and transported asbestos containing doors. Mr. Masephol alleges he wore a 3M mask while working in the dusty Mineral Core area. Mr. Masephol stated that his father worked at Weyerhaeuser Marshfield and he claims that while growing up he was exposed to asbestos dust from his father's clothes, and from riding in his father's car. Mr. Masephol's testimony also noted that the local ventilation systems would go down he would at times go outside and witness maintenance personnel working on it. While the repair was taking place he stated there would be a pile of fine dust on the ground, and the maintenance personnel would be covered in "white dust". Mr. Masephol also testified that depending on the way the wind blew there would be a "white dust" on his car which was parked in the company parking lot. In Mr. Masephol's complaint he stated that all exposures to asbestos caused his asbestos related condition. Additionally, Mr. Parker's testimony and his report supports Mr. Masephol's claim that a household exposure to asbestos containing dust took place while Mr. Masephol lived with his parents. Mr. Wesley Sydow worked at Weyerhaeuser

Marshfield from 1947 to 1990 and he held numerous positions at the facility throughout his career, many of which required him to work inside the asbestos door making operation. Mr. Sydow's testimony reflects that it was common for him to work in and visit the asbestos door making operation often from 1960 to 1975. He also alleges he wore a mask at times in the 1960's, and a 3M 8710 mask starting in 1972. Mr. Sydow's exposure summary history, which was prepared by Cascino Vaughn Law Offices, stated he shook the dust out of his work clothes and put them in the regular laundry. Mr. Sydow's complaint states he was exposed to asbestos containing dust while working inside the plant, at home and from being part of the community near the plant, and that all of these exposures contributed to his asbestos related condition. Additionally, Mr. Parker's testimony and his report supports Mr. Sydow's claim that household and community exposure to asbestos containing dust took place.

Mr. Boyer began working at the Weyerhaeuser Marshfield Plant in 1973. He held a number jobs at the plant until he quit in 1983. Mr. Boyer testified that while working in the mineral core building and while driving the sweeper he wore a white mask with two yellow straps. Mr. Boyer's father, Wally Boyer worked at the Weyerhaeuser Plant driving a "Kaylo" truck, and his mother, Audrey Boyer also worked at the Weyerhaeuser Plant in the veneer and inspecting departments. Mr. Boyer states he was exposed to asbestos containing dust while driving in the family car, and from his fathers work clothes. Furthermore he claims the Weyerhaeuser Marshfield operations contaminated the surrounding community with asbestos fibers, and as a result he was exposed to airborne asbestos fibers while in the community. Mr. Boyer's complaint states he was exposed to asbestos containing dust while working inside the plant, at home and from being part of the community near the plant, and that all exposures contributed to his asbestos related condition. Additionally, Mr. Parker's testimony and his report supports Mr. Boyer's claim that household and community exposure to asbestos containing dust took place.

Mrs. Sharon Heckel's exposure summary history, which was prepared by Cascino Vaughn Law Offices, stated that Mrs. Heckel worked as a sander helper in the mineral core department from 1970 to 1978. It also reported that her work clothes looked dirty when she came home. Mr. Brian Heckel's testimony stated that they lived about one mile from the plant from 1970 to 1978. The complaint of Mr. Brian Heckel who represents the estate of Sharon Heckel states that Mrs. Sharon Heckel was exposed to asbestos fibers inside and outside the plant. Additionally, Mr. Parker's testimony and his report supports the claim that Mrs. Sharon Heckel was exposed to asbestos fibers in her home and community.

On August 1975, D.B. Allen published a report titled, Marshfield: An Environmental History. The report cites a number of complaints from the late 1950's to 1975 from residence regarding emission of particulates.

Mr. Charles Reno worked at the Weyerhaeuser Marshfield facility for 57 plus years and many of those years involved working in the maintenance department. While working in the maintenance department his jobs included maintaining the bag houses for the facility, which included the mineral core operation, and hauling waste to the dump. Mr. Reno stated that dust from the mineral core operation was white and wood dust was brown. Mr. Reno testified that the Carter Day baghouse in the mineral core had problems, and that fixing the breakdowns, along with cleaning them out created dust that was released into the air. Furthermore, Mr. Reno testified that he hauled material waste to the dump, and that the process for transferring the material to the truck created dust. When questioned about the process and environment, Mr. Reno stated: "Well, we never wore a mask or anything, and I mean, it was – it was dusty all the time whenever—well, whenever you clean up, there's dust, and it was dusty."

Mr. Everett Burt worked at Weyerhaeuser Marshfield from 1962 to 1975 and he worked in and around the mineral core process. Mr. Burt testified that the baghouse broke down weekly and dust would come out of the exhaust stack and would blow into the air when breakdowns occurred.

Mr. Joseph Wendlick is a Certified Industrial Hygienist and he worked for Weyerhaeuser in the 1960's and 1970's. During this time period, Mr. Wendlick took a lead role in assisting Weyerhaeuser Marshfield's efforts in complying with the OSHA asbestos regulations. Following are several reports that Mr. Wendlick filed while employed at Weyerhaeuser.

- J. D. Wendlick published a report on December 17, 1973 and it notes that when the Carter Day baghouse became plugged the excess mineral core dust spilled on the ground.
- J. D. Wendlick published a report on April 9, 1974 and it stated that asbestos fibers were found in dust accumulations on lunch tables in the Core Mill lunchroom.
- J. D. Wendlick published a Quarterly Asbestos Report on October 27, 1975. The report contains environmental asbestos sampling results downwind from mineral core scrap depositions at the Cleveland landfill and in the plant yard near the Carter Day baghouse. The two asbestos samples that were 20-50 feet away from the Carter Day baghouse in the plant yard were 0.165 and 11.22 fibers/cc. Two samples were taken at 100 feet from the landfill and those values were 0.445 and 0.122 fibers/cc.

Three samples were taken at 300 feet from the landfill and those values were 0.155, 0.135 and 0.135 fibers/cc. Three samples were taken one-quarter mile from the landfill and those asbestos values were 0.019, 0.227 and 0.108 fibers/cc.

- In 1973 Mr. Joseph Wendlick published a report and he presented its findings at the Pacific Northwest section of the American Industrial Hygiene Association. The results outlined in Table 1 indicate that many of the first time airborne samples taken at Weyerhaeuser Marshfield from June 1972 to February 1973 were above the OSHA asbestos standard for that time which was 5 fibers/cc. Table 1 also shows results after the plant instituted engineering and housekeeping controls.

Table 1: Typical Before and After Asbestos Fiber Concentration in Product (P) and Fabrication (F) Plants (Data from Joseph Wendlick's Report titled: Asbestos Control – An Industrial Experience)

Work Station	Asbestos (f/cc) 6/72 to 2/73	Asbestos (f/cc) 5/73 to 6/73
Weighing Room (P)	6.6 - 34.0	3.0 - 7.3
Wet end dryer loader (P)	1.5	1.2
Dryer unloader (P)	5.2 - 9.0	3.6 - 5.9
Trim saw operator (P)	3.2 - 6.6	0.50 - 2.0
Sorting and grading (P)	3.9 - 17.1	3.2 - 9.6
Salvage saws (P)	4.1 - 14.9	0.50 - 0.90
Factotum (P)	3.7	1.5
Quality control (P)	2.2	1.3
Double-end tenoner feeder (F)	2.5 - (82.0) *	1.7 - 3.3
Double-end tenoner offbearer (F)	2.6 - 25.5	0.11 - 1.1
Electronic set-up (F)	6.2	0.17 - 0.60
Electronic offbearer (F)	8.4	0.08 - 0.17
Abrasive planer feeder (F)	6.3 - 19.4	5.4 - 7.6
Abrasive planer offbearer (F)	4.6 - 29.2	0.30 - 1.1
Inspection	4.7 - 24.3	0.21 - 1.9 (one peak at 4.6)
Routing * (F)	3.9 - 24.8	6.5
Mortising (F)	7.7	-
Clean-up *	37.8	1.5

- peak exposures only

The testimonies of Mr. Wendlick, Mr. Haeni, Mr. Koepke and Mr. Saindon, who all worked for Weyerhaeuser Marshfield, indicate that sometime after the initial asbestos monitoring was conducted in 1972/73 engineering controls were implemented, along with the use of respirators on the production floor. Therefore throughout the 1960's and until late 1972 respiratory protective equipment was not being used to help reduce worker asbestos exposure levels.

In May of 1969 the Corporate Medical Director at Weyerhaeuser reported in an interoffice communication that operations in the mineral core plant and core mill had high dust concentrations and noted that further ventilation and controls are needed. Also, on March 24, 1970 the Corporate Medical Director once again wrote an interoffice communication where he cites there had been changes in the pulmonary function tests of workers and he indicates that there needs to be improvement in the dusty conditions that exist in the plant.

Weyerhaeuser Marshfield had an obligation not to expose and contaminate the surrounding households and community to hazardous materials, which would include asbestos containing dusts. Based on the above and other proceedings that I have reviewed it shows that some level of asbestos fibers were released in the homes of workers and in the community. Therefore it indicates that non-occupational exposures to asbestos fibers took place.

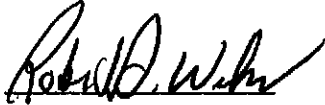
If it is alleged that the Plaintiffs wore a 3M 8710 respirator I will testify that the 3M 8710 was: approved by NIOSH in 1972 for pneumoconiosis and fibrosis producing dust, which includes asbestos; always maintained its NIOSH approval; was safe for its intended use when selected and used in accordance to the OSHA Asbestos Standards 29 CFR 1910.93a and 29 CFR 1910.1001, and OSHA Respiratory Protection Standard 29 CFR 1910.134; and was appropriate for protection against asbestos containing dusts when used in accordance to a written respirator program as outlined in the above OSHA regulations. I will also testify that the 3M 8710 packaging, advertising, warnings and instructions contained the appropriate information for its time period. I will testify that when the 3M 8710 respirator is selected, used and worn according to OSHA regulations it has an assigned protection factor of 10.

Mr. Wendlick testified he performed a workplace study in the early 1970's at mineral core operation to determine the effectiveness of the 3M 8710 on the production floor. He stated, "with the exception of people that had beards, consistently it was 10 to 15 as a protection factor for the 3M 8710." Mr. Wendlick's study on the performance of the 3M 8710 at Weyerhaeuser Marshfield supports the workplace studies that were undertaken by 3M, and



supports OSHA's assigned protection factor of 10 for half mask respirators, such as the 3M 8710. I expect to testify on the impact that "wear time" has on protection factors, and that a respirator will not provide any protection if it is not worn. I will also testify that Mr. Masephol, Mr. Sydow, Mr. Boyer, and Mrs. Heckel all had periods of unprotected exposures.

If other experts raise issues I may provide my opinions if they are within my scope of expertise and practice, and this may include reviewing additional materials and documents. Also, if other case materials become available I reserve the right to amend this report or provide an additional supplemental report.



Robert A. Weber

8.26.15

Date

**Foundation Documents in Support of Report and Supplemental Report of  
Robert Weber, C.I.H.**

**Packaging**

1. 1971 8710 Packaging (3M 52815/2816)
2. 1972 8710 Packaging (3M 52817/2820.001)
3. 1972 8710 Packaging (3M 52821/2825)
4. 1973 8710 Packaging (3M 52826/2827)
5. 1973 8710 Packaging (3M 52836/2837)
6. 12/30/74 8710 Packaging (3M 52831/2835)
7. 1976 8710 Packaging (3M 94153/4154)
8. 7/11/77 8710 Packaging (3M 52838/2842)
9. 7/11/77 8710 Packaging (3M 27356/7358)
10. 1/2/79 8710 Packaging (3M 52843/2847)
11. 9/19/80 8710 Packaging (3M 126263/6264)
12. 11/12/80 8710 Packaging (3M 52850/2853)
13. 3/5/81 8710 Packaging (3M 52854/2857)
14. 3/5/81 8710 Packaging (3M 52849/2849.001)
15. 9/28/82 8710 Packaging (3M 52862/2865)
16. 10/26/83 8710 Packaging (3M 52866/2869)
17. 12/14/84 8710 Packaging (3M 91443/1446)
18. 4/1/86 8710 Warning Card (3M 126114)
19. 10/6/86 8710 Packaging (3M 126115/6118)
20. 1/9/87 8710 Packaging (3M 126119/6122)
21. 4/17/87 8710 Packaging (3M 126298/6299)
22. 5/11/87 8710 Packaging (3M 126301/6302)
23. 12/2/87 8710 Packaging (3M 127827/7830)
24. 1/19/88 8710 Packaging (3M 378303/8303.001)
25. 5/1/95 8710 Packaging (3M 378294/8295)
26. 8/7/87 8710 Packaging (3M 630867/0870)
27. 8710 Warning (3M 486243)
28. "8710 Fitting and Usage Instructions" (3M 378300/8301)



**Foundation Documents in Support of Report and Supplemental Report of  
Robert Weber, C.I.H.**

29. 12/2/87 8710 Packaging (3M 1054534/4538)
30. 1/1/1972 8710 Advertising (3M 0343689/34390)
31. 8710 Advertising (3M 094128/094131)
32. 1/1/1972 8710 Advertising (3M 052794)
33. 8710 Advertising (3M 052748)
34. 1/1/1977 8710 Advertising (3M 057262/057264)
35. 1/1/1989 8710 Advertising (3M 344224/344235)
36. Occupational Health & Safety  
Products Consumer Catalog 1984-1985 (3M 428030/8049)
37. 3M Occupational Health & Safety Products 1986  
(3M 314128/4148)
38. 3M Occupational Health & Safety Products - From Science Simplicity (3M  
309036/9059)
39. 1989 3M Occupational Health & Environmental Safety Division (3M  
351903/1926)
40. 1993 3M Occupational Health & Environmental Safety Division (3M  
350996/1021)
41. "In Response to You and Your Workers" - Respirator Brochure (8500 and  
8710) (3M 344017/4024)
42. "In Response to You and Your Workers" - Respirator Brochure (8500 and  
8710) (3M 52256/2263)
43. "In Response to You and Your Workers" - Respirator Brochure (8500 and  
8710) (3M 52276/2295)
44. "In Response to You and Your Workers" - Respirator Brochure (8500 and  
8710) (3M 52300/2319)
45. 3M Occupational Health & Safety Products - Respirator Brochure (8500 and  
8710) (3M 344187/4194)
46. "See the Difference" - Respirator Brochure (8500 and 8710)  
(3M 52248/2255)
47. "Risk Management" 8710 Advertisement (3M 351632)
48. Respirator identification key (3M 344159/4164)
49. 3M Occupational Health and Safety Procedures from Science Simplicity (3M  
344129/4157)
50. For the Many Faces of Industry - 8500 and 8710 Chart  
(3M 344788/4789)

**Foundation Documents in Support of Report and Supplemental Report of  
Robert Weber, C.I.H.**

51. "Recognition, Evaluation, Control . . . Air Monitoring Systems and Personal Protection for Health Care" - Brochure (8500 and 8710) (3M 314168/4171)
52. "Respiratory Protection, 3M Selection Guide" - Brochure (8500 and 8710) (3M 119123/9124)
53. 1979 "The What, Where, Why and How of 3M Particulate Respirators" - Brochure (8500 and 8710) (3M 091432/1442)
54. "If our Dust/Mist Respirators don't look like much, it's because we planned them that way" - Brochure (8710) (3M 344851/4858)
55. Compound Guide to 3M Particulate Respirators (3M 338812/8813)
56. 3M Respirator Guide Chart (8710) (3M 344274)
57. 3M Respirator Selection Guide with Flow Chart (3M 350947/0995)
58. Dust/Mist Respirator (8710) (3M 343486/3487)
59. 3M Face Fit Products (3M 403690/3691)
60. Photograph of 8710 respirator (3M 698918)

**Laboratory Testing**

1. 3M Technical Bulletin, No. 114, Nelson Leidel's comments to NIOSH on proposed 42 CFR 84, Oct. 1994 (3M 364376/4379)
2. Draft Tech-Ni-Data Bulletin, Subject: Coal Dust Tightness Test (3M 001808)
3. 1/13/71 Field letter from J. Cain to R.J. Barghini (3M 0022836/840)
4. 2/09/72 3M Technical Report Summary: 8710 Respirator Product Development (3M 79511/9518)
5. 4/13/72 3M Technical Report Summary: 8710 Respirator - Product Development (3M 348723/8732)
6. 6/19/72 Temporary Technical Information Sheet 3M Brand Respirator 8710 (3M 15172/5176)
7. 12/82 3M Brand 8710 Dust/Mist Respirator: Material Safety Data Sheet (3M 104576/4577)
8. Videotape, "Respiratory Protection Evaluating the Options" (1987) (3M 632575)

**Foundation Documents in Support of Report and Supplemental Report of  
Robert Weber, C.I.H.**

9. 11/71 "Evaluation of Dust Respirators for Canadian Johns Manville Company Limited," McGill University (3M 309187/9257)
10. 2/72 "The Efficiency of the 3M 8710 Respirator as a Protective Device in an Atmosphere Containing Free Silica Dust," McGill University (3M 309258/9262)
11. 7/78 "Protection Afforded by Respirator Filters Against Airborne Asbestos Fibers," R. M. Howie (3M 309153/9171)
12. 12/78 "An Investigation into the performance of 3M's disposable respirators, types 8710 and 8800, against penetration by airborne asbestos," W. B. Johnston (3M 24336/4347)
13. "Respiratory Particulate Filtration," Daniel A. Japuntich, OH&SP, 3M (3M 142287/2327)
14. Report done by UK government, evaluation of 8710 and 8800 for filter penetration (3M 386548/6560)
15. Test data prepared by NIOSH used to correlate 3M silica dust chambers with NIOSH silica dust chambers (3M 413790/3792)
16. Interim Report: Penetration of Respirator Filters by An Asbestos Aerosol, L.W. Ortiz, S.C. Soderholm and F.O. Valdez, Industrial Hygiene Group, Los Alamos National Laboratory, Los Alamos, New Mexico, May 2, 1984 (3M 568332/568350)
17. Literature review of testing regarding various respirators done by Los Alamos (3M 623355/3418)

**Foundation Documents in Support of Report and Supplemental Report of  
Robert Weber, C.I.H.**

18. Reports of testing done by Ben Liu at U of M and by Los Alamos on respirators including 8710 (3M 130535/0573)
19. "Respiratory Filtration Theory," Daniel A. Japuntich, Ind. Hyg. News, Vol. 8, No. 6, September 1985 (3M 448964/8967)
20. "Respiratory Particulate Filtration," Japuntich, D.A., International Society for Respiratory Protection, Vol. 2, Issue 1, January 1984 (3M 446956/6990)
21. "Comparison of Six Respirator Fit-Test Methods With an Actual Measurement of Exposure: Part III – Validation," Coffey, C.C., Campbell, D.L., Myers, W.R., and Das, S., accepted for publication AIHA Journal, 1998 (3M 691811/1823)
22. "Comparison of Six Respirator Fit-Test Methods With an Actual Measurement of Exposure in a Simulated Health Care Environment: Part I – Protocol Development," Coffey, C.C., Campbell, D.L., Myers, W.R., Zhuang, Z. and Das, S., AIHA Journal (59): 852-861, 1998 (3M 691801/1810)
23. "Comparison of Six Respirator Fit-Test Methods With an Actual Measurement of Exposure in a Simulated Health Care Environment: Part II – Method Comparison Testing," Coffey, C.C., Campbell, D.L., Myers, W.R., and Zhuang, Z., AIHA Journal (59): 862-870, 1998 (3M 691792/1800)

**Qualitative and Quantitative Fit Testing**

1. Respirator Fit Test, 3M 8710 D/M Disposable Respirator (3M 180172/0182)
2. Report of J.E. Knopp to Mr. Charles Richards, Los Alamos (3M 19581/9583)
3. Los Alamos Study regarding saccharine qualitative fit test procedure (3M 651812/1833)
4. The No. 8710 Respirator (3M 629228/9239)
5. 3M No. 8710 Test Requirements (3M 86952/6953)
6. 3M Position on Protection Factors Assigned to Single-Use Respirators (3M 024300/4335)
7. Respirator Fit: Methods of Testing and Results, Alan Johnston (3M 584655/4672)
8. Validation of Positive Pressure Fit Check (3M 128243/8244)
9. Respirator Fit Test 3M 8710 D/M Disposable Respirator, 1985 (3M 609591/9607)

**Foundation Documents in Support of Report and Supplemental Report of  
Robert Weber, C.I.H.**

10. Evaluation of Saccharin Qualitative Fit Testing for Respirators, James L. Marsh, American Industrial Hygiene Association Journal (June, 1984) (3M 614884/614889)
11. 11/26/75 Performance Studies for Leakage of Half Mask Respirators (3M 23527/3563)
12. 10/21/81 Letter from J. F. Dickey to OSHA Docket Office regarding Saccharine Qualitative Fit Testing (3M 447811/7829)
13. "Validation of a Quantitative Fit Test for Dust/Fume/Mist Respirators: Part I," Sandra G. Iverson, Susan G. Danisch, Haskell E. Mullins, and Shelly K. Rudolph, Appl. Occup. & Environ. Hyg., Vol. 7, No. 3, March 1992 (3M 398758/8765)
14. "Respirator Fit Testing," Craig E. Colton, Occup. Health & Safety, May 1996 (3M 582157/2160)
15. "A Quantitative Fit Test for Dust/Mist Respirators: Part II", Susan G. Danisch, Haskell E. Mullins, and Carol R. Rhoe, Appl. Occup. Environ. Hyg., Vol. 7, No. 4, April 1992 (3M 606266/606271)
16. "Quantitative Fit Testing Techniques and Regulations for Tight-Fitting Respirators: Current Methods Measuring Aerosol or Air Leakage, and New Developments," Han, D.N., Willeke, K., Colton, C.E., AIHA Journal, March 1997 (3M 606240/6249)
17. "Quantitative Fit Testing of Respirators: Past, Present and Future," Myers, W.R., Fluid Filtration: Gas, Volume I, ASTM STP 975, R.R. Raber, Eds., American Society for Testing and Materials, Philadelphia, PA (1986) (3M 691824/1833)
18. "The Effect of Pressure Drop on Respirator Faceseal Leakage," Larry Janssen and Robert Weber, Journal of Occupational and Environmental Hygiene, July 2005 at 335-340 (3M 1235546-1235551)
19. Protection Factors Based on LASL, 3M and Dow Man Test Data; Edwin C. Hyatt (3M 691178/1181)
20. OSHA Field Operations Manual and Industrial Hygiene Field Operations Manual (1979) (3M 696887/7089)
21. OSHA Instruction CPL 2-2.29 regarding 29 C.F.R. 1910.134(e)(5)--Respirator Fit-Testing, October 27, 1980 (3M 617945/947)
22. OSHA Assigned Protection Factors; Final Rule -- 1910, 1915, and 1926, August 24, 2006
23. Federal Register. Vol. 37, No. 59, Respirator Protective Devices; Tests for Permissibility Saturday, March 25, 1972

**Foundation Documents in Support of Report and Supplemental Report of  
Robert Weber, C.I.H.**

24. 42 CFR 84, Part Two, Respiratory Protective Devices; Final Rule and Notice, 1995
25. 42 CFR 84 (10/1/99)
26. 42 CFR 84 (10/1/00)
27. 42 CFR 84 (10/1/01)
28. 42 CFR 84 (10/1/02)

**Workplace Testing**

1. 8/11/77 8710 Testing Data taken at Shenango, Inc. Plant, Sharon, Pennsylvania (3M 024249/4264; 3M 024281/4290)
2. 1977, Summary of 8710 Efficiency Tests, Shenango, Inc., Sharon, Pennsylvania (3M 24298/4299)
3. 6/77 Field Letter of S.J. Kulhanek regarding Field Testing of 8710 at Shenango, Inc., Sharon, Pennsylvania (3M 16260/6264)
4. Field Letter of D.P. Wilmes & R. J. Barghini (3M 21428/1434)
5. 2/16/78 Report by R.J. Barghini to Lee Ivester, Industrial Hygienist of Fieldcrest Mills (3M 116151/6155)
6. Workplace Protection Factors of Half-Mask Respirators, C. E. Colton, A. R. Johnston, and R. E. King (3M 407612/7636)
7. "A Comparison of the Workplace Performance of a Dust/Mist and Two N95 Particulate Half Facepiece Respirators", June 7, 1999 Presentation by C. E. Colton and J. O. Bidwell at the American Industrial Hygiene Conference and Exposition, Toronto, Ontario, Canada (3M 699525/699546)
8. 1983 "DuPont Evaluates Respirator Efficiency for Asbestos" (3M 142354/2355)
9. Shiloh Brake Study, Workplace Protection Factor, Airborne Asbestos (3M 127831/7854)
10. Study by Kaiser Aluminum, experience with disposable respirators in primary aluminum production (3M 428150/8175)
11. Documents relating to DuPont Asbestos Study (3M 430780/0814)
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13. Abstract re: "Workplace Protection Factor Study on a Half Mask Dust/Mist Respirator," Colton, C.E., Johnston, A.R., Mullins, H.E., Rhoe, C.R., and Myers, W.R., 1990 (3M 565575/5583)
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24. 4/18/72 Phone Conversation Report from Robert Barghini (3M Bates No. 001269.001)
25. 5/16/73 Memorandum from J. E. Cain to R. B. Savin w/attachment (3M 006097/6098)
26. 3/12/71 Memorandum from Duncan A. Holaday to members of AHFIAW (3M 105133/5134)
27. 3/9/72 Memorandum from J. E. Barnard to 3M personnel regarding phone conversation with W. A. Bardswick (3M 015614)
28. 3/10/78 Memorandum from W. P. Herris to All Occupational Health and Safety Products Division Sales Representatives and Sales Managers w/attachment (3M 79686/9703)
29. 8/2/83 Memorandum from Ron King to Erroll Hay w/attachment (3M 118835/8838)
30. 10/24/86 Memorandum from D. J. Kolander to OH&SP Distributors (3M 344619/4620)
31. 2/16/78 Letter from Thomas A. Clark to Phillip L. Whitson, General Counsel and Director of Regulatory Affairs for Pelton & Crane (3M 032557/2558)
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- 10/24/86 Memorandum from D.J. Kolander to OH&SP Distributors (3M 599224/9226)
33. 10/14/86 Memorandum from R.A. Pereson to OH&SP Sales Manager/Supervisors and Sales Representatives (3M 128471/8473)
34. 6/23/75 Memorandum from D.P. Wilmes to W.B. Hillier (3M 006045)
35. 12/20/73 Memorandum from J.E. Barnard to P.G. Rogerson w/attachment (3M 108718/8719)
36. 8/16/76 Letter from J.E. Cain to R. Gazdick, Marathon Oil Company (3M 017145/7146)
37. 4/4/72 Correspondence from Curtis A. Thorpe to Balkamp, Inc. (3M 034726)
38. 4/19/72 Memorandum from C. A. Thorpe to Warren Wasescha (3M 034731)
39. 9/4/81 Letter from 3M to Raybestos-Manhattan (3M 118816)
40. 1/13/86 Letter from 3M to Kendall Mills (3M 674294)
41. 10/9/80 Internal Correspondence from P. F. Guehler to E. D. Horne (3M 000060/0064)
42. 12/1/71 Interoffice Correspondence from D.P. Wilmes to J.N. Linnerooth (3M Bates No. 115526)
43. 6/5/72 Interoffice correspondence from J.F. Dyrud to R.J. Barghini (3M Bates No. 001136)
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47. 3/9/72 Memorandum from J. E. Barnard to 3M personnel regarding phone conversation with W. A. Bardswick (3M 015614)
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- Safety Products Division Sales Representatives and Sales Managers  
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49. 8/2/83 Memorandum from Ron King to Erroll Hay w/attachment (3M 118835/8838)
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65. 5/18/72 Phone Conversation Report re Conversation with Ed Hyatt (3M Bates Nos. 001268-001269)
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70. 2/24-26/70 Field letter of J. E. Corbin and R. J. Barghini to A. H. Redpath regarding meeting with the American National Standards Institute (3M 349303/9306)
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9. 1973 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.93a; 1910.94; 1910.134-135
10. 1974 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-16; 1910.93a; 1910.94; 1910.134-135
11. 1975 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-17; 1910.94; 1910.132-138; 1910.1000; 1910.1001
12. 1976 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
13. 1977 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
14. 1978 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
15. 1979 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
16. 1980 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
17. 1981 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
18. 1982 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.1000; 1910.1001
19. 1983 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001

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20. 1984 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
21. 1985 CFR Title 29 - Part 1910  
Occupational Safety & Health Standards §§ 1910.1-6; 1910.11-20; 1910.94;  
1910.134; 1910.1001
22. 1986 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-6; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1001;  
1910.1200
23. 1987 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-6; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1001;  
1910.1101; 1910.1200
24. 1988 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
25. 1989 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
26. 1990 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
27. 1991 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
28. 1992 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
29. 1993 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
30. 1994 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
31. 1995 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1000; 1910.1001; 1910.1200
32. American National Standard for Respiratory Protection, ANSI Z88.2 - 1992



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Robert Weber, C.I.H.**

(3M 582801/2840)

- 33. OSHA Assigned Protection Factors; Final Rule – 1910, 1915, and 1926, August 24, 2006
- 34. 29 CFR Parts 1910, 1915, and 1926 Assigned Protection Factors, June 6, 2003.
- 35. Also, transcripts of deposition testimony in this case, including plaintiff, plaintiff's employers and co-workers, and plaintiff's expert witnesses.

**OSHA Regulations and Requirements for Workplace Safety**

- 1. 1972 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-17; 1910.93-94; 1910.134
- 2. 1973 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.93a; 1910.94; 1910.134-135
- 3. 1974 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-16; 1910.93a; 1910.94; 1910.134-135
- 4. 1975 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-17; 1910.94; 1910.132-138; 1910.1000; 1910.1001
- 5. 1976 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
- 6. 1977 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
- 7. 1978 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
- 8. 1979 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
- 9. 1980 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
- 10. 1981 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
- 11. 1982 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.1000; 1910.1001
- 12. 1983 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001

**Foundation Documents in Support of Report and Supplemental Report of  
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13. 1984 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
'' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
14. 1985 CFR Title 29 - Part 1910  
Occupational Safety & Health Standards §§ 1910.1-6; 1910.11-20; 1910.94;  
1910.134; 1910.1001
15. 1986 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-6; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1001;  
1910.1200
16. 1987 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-6; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1001;  
1910.1101; 1910.1200
17. 1988 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
18. 1989 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
19. 1990 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
20. 1991 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
21. 1992 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
22. 1993 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
23. 1994 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
24. 1995 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1000; 1910.1001; 1910.1200
25. Also, transcripts of deposition testimony in this case, including plaintiff,

**Foundation Documents in Support of Report and Supplemental Report of  
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plaintiff's employers and co-workers

**Employer Responsibility**

1. 1972 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-17; 1910.93-94; 1910.134
2. 1973 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.93a; 1910.94; 1910.134-135
3. 1974 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-16; 1910.93a; 1910.94; 1910.134-135
4. 1975 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-17; 1910.94; 1910.132-138; 1910.1000; 1910.1001
5. 1976 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
6. 1977 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
7. 1978 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
8. 1979 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-19; 1910.94; 1910.134; 1910.1000; 1910.1001
9. 1980 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
10. 1981 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
11. 1982 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.1000; 1910.1001
12. 1983 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
13. 1984 CFR Title 29 - Part 1910 Occupational Safety & Health Standards  
' ' 1910.1-6; 1910.11-20; 1910.94; 1910.134; 1910.1000; 1910.1001
14. 1985 CFR Title 29 - Part 1910  
Occupational Safety & Health Standards §§ 1910.1-6; 1910.11-20; 1910.94;  
1910.134; 1910.1001
15. 1986 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§

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Robert Weber, C.I.H.**

- 1910.1-6; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1001;  
1910.1200
16. 1987 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-6; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1001;  
1910.1101; 1910.1200
17. 1988 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
18. 1989 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
19. 1990 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
20. 1991 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1101; 1910.1200
21. 1992 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
22. 1993 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
23. 1994 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1-7; 1910.11-19; 1910.94; 1910.98-100; 1910.134; 1910.1000;  
1910.1001; 1910.1200
24. 1995 CFR Title 29 - Part 1910 Occupational Safety & Health Standards §§  
1910.1000; 1910.1001; 1910.1200
25. American National Standard: Practices for Respiratory Protection, ANSI  
Z88.2-1969 (3M 081814/1844)
26. American National Standard for Respiratory Protection, ANSI Z88.2 - 1992  
(3M 582801/2840)
27. OSHA Assigned Protection Factors; Final Rule – 1910, 1915, and 1926,  
August 24, 2006
28. 29 CFR Parts 1910, 1915, and 1926 Assigned Protection Factors, June 6,  
2003.

**Foundation Documents in Support of Report and Supplemental Report of  
Robert Weber, C.I.H.**

29. Also, transcripts of deposition testimony in this case, including plaintiff, plaintiff's employers and co-workers, and plaintiff's expert witnesses.